

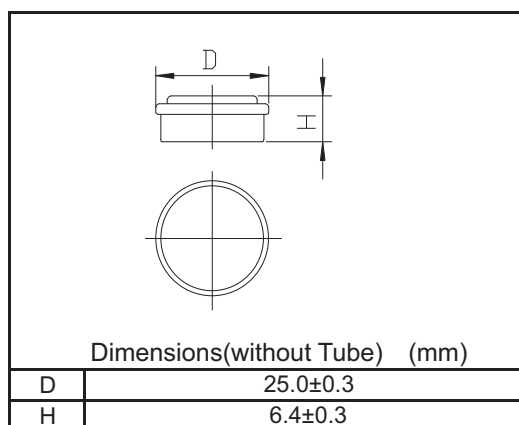
1.- Introduction

This specification governs the performance of the following FULLWAT Nickel-Metal button cell (NH230BJ) and is stack-up batteries.

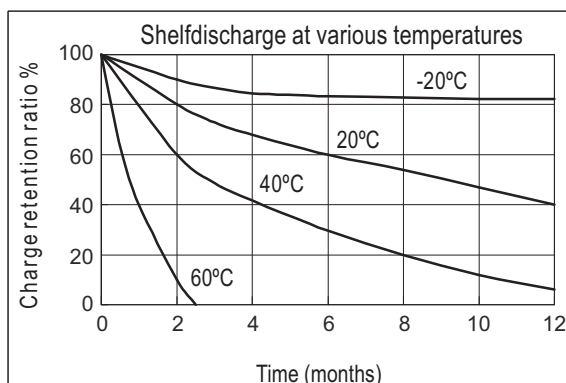
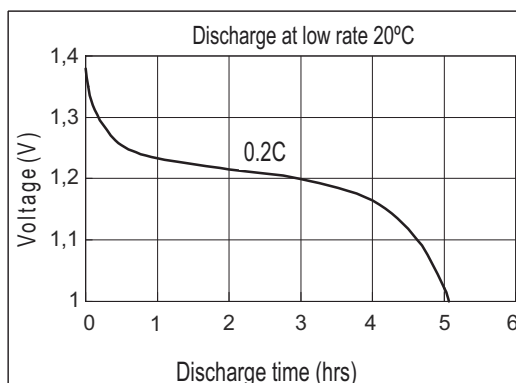
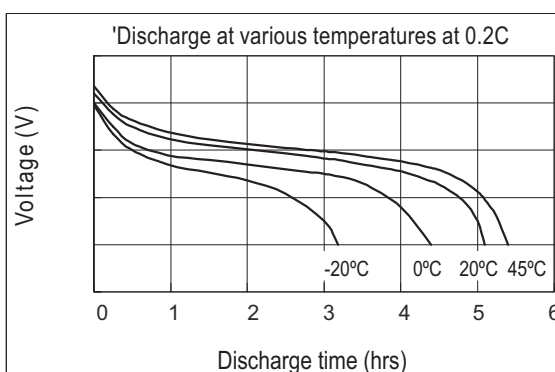
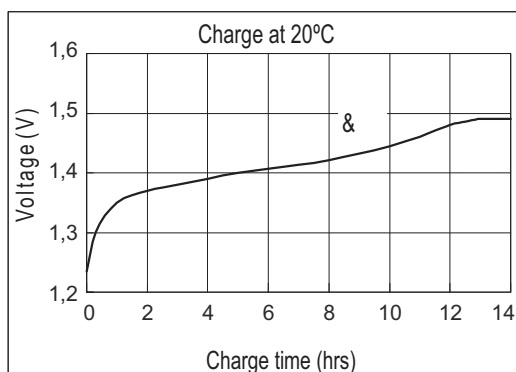
2.- Data of stack up batteries

All data involves and weight to stack-up battery are equal to the value of unit cell time the number of unit cell which consisted in the stack batteries.

3.- Ratings



Nominal Capacity		230 mAh
Nominal Voltage		1.2 V
Charge current	Standard	23 mA
	Fast	46 mA
Charge time	Standard	16 Hrs
	Fast	6 Hrs
Ambient Temperature	Standard	0°C~45°C
	Fast	10°C~45°C
	Discharge	-20°C~60°C
	Storage	-20°C~55°C
Internal Impedance(m) (After Charge)		≤800
Weight		10.2 g



4.- Configuration and dimensions

See attached graphics.

5.- Performance

Unless otherwise stated, tests should be done within one month of delivery under the following conditions:

Ambient temperature (T1): $20 \pm 5^\circ\text{C}$
Relative humidity $60 \pm 20\%$

Charge conditions $23\text{ mA (C/10)} \times 14\text{ hours}$
Discharge conditions $23\text{ mA (C/10)} \times 14\text{ hours}$

Test	Unit	Specification	Condition	Remarks
Capacity	mAh	≥ 230	Standard Charge/ Discharge	up to 3 cycles are allowed
Open Circuit Voltage(OCV)	V	≥ 1.25	Within 1 hour after standard charge	
Internal Impedance	m Ω	≤ 800	Upon fully charged(1KHz)	
High Rate Discharge(0.5C)	min	≥ 60	Standard Charge, 1 hour rest before discharge by 0.5C to 1.0V/cell	up to 3 cycles are allowed
Charge Retention	mAh	$\geq 184\text{ (80\%)}$	Standard Charge,Storage: 28 days Standard Discharge	$T_1=20\pm5^\circ\text{C}$
IEC Cycle Life	Cycle	≥ 500	IEC61951-2(2003)7.4.1.1	see Note 3
Discharge current	mA	115	Maximum continuous discharge current	
Leakage		No leakage nor deformation	Fully charged at : 23 mA stand for 14 days	
Vibration Resistance		Change of voltage should be less than 0.02V/cell,Change of impedance should be less than 5 milli-ohm/cell	Charge the battery at 0.1C for 14hrs,then leave for 24hrs,check battery before/after vibration,amplitude 1.5mm,vibration 3000 CPM,any direction for 60mins,	
Impact Resistance		Change of voltage should be less than 0.02V/cell,change of impedance should be less than 5 milli-ohm/cell	Charge the battery at 0.1C for 14hrs,then leave for 24hrs,check battery before/after dropped,height 50 cm wooden board(thickness 30mm)direction not specified,3 times.	
Short-Circuit		No explosion,allow leakage and deformation	Charge the battery at 0.1C for 14hrs,then connect the positive and negative terminals of the battery with a conducting wire having minimum sectional area of 0.75mm^2 for 1 hour	

6.- External appearance

The cell/battery shall be free from cracks, scars, breakage, rust, discoloration, leakage nor deformation.

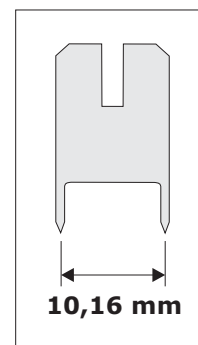
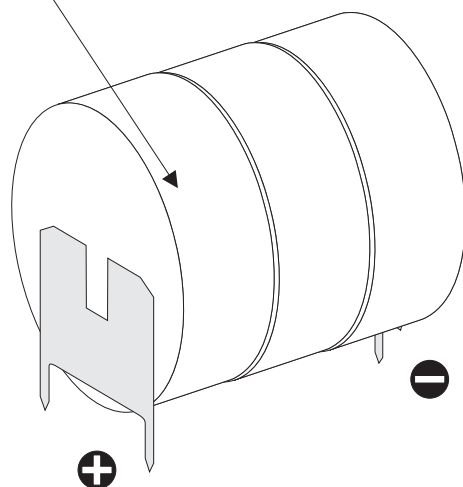
7.- Warranty

One year limited warranty against workmanship and material defects.

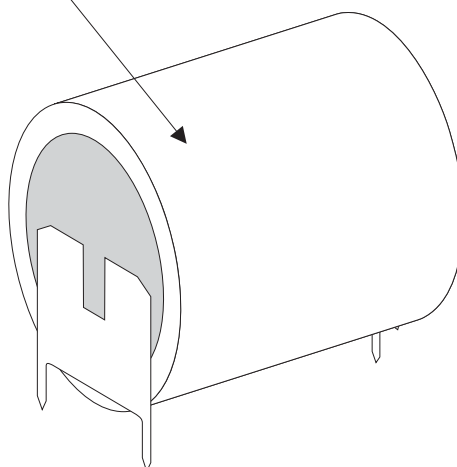
8.- Caution.

- Reverse charging is not acceptable.
- Charge before use. The cells/batteries are delivered in an uncharged state.
- Do not charge/discharge with more than our specified current.
- Do not short circuit the cell/battery. Permanent damage to the cell/battery may result.
- Do not incinerate or mutilate the cell/battery.
- Do not solder directly to the cell/battery.
- The life expectancy may be reduced if the cell/battery is subjected adverse conditions like: extreme temperature, deep cycling , excessive overcharge/ over-discharge.
- Store the cell/battery uncharged in a cool dry place. Always discharge batteries before bulk storage or shipment.

3 x 250H Button Cell



External Green PVC



Referencia:	3NH280BJP3
Fecha:	11 / 04 / 2008
Revisión:	V01
Autorizado:	